

REMARKS

Favorable reconsideration of this application, in light of the following discussion, is respectfully requested.

Claims 1-9 are pending and under consideration.

I. Objection to the Specification

In the Office Action, at page 2, the specification was objected to due to informalities. The specification has been amended in response to this objection, as shown above. Accordingly, withdrawal of this objection is respectfully requested.

II. Rejection under 35 U.S.C. § 103

In the Office Action, at pages 2-4, claims 1-4 and 7-9 were rejected under 35 USC § 103(a) as being unpatentable over Arenson et al. (U.S. Patent No. 6,304,769).

Arenson et al. does not discuss, suggest, or make obvious:

a magnetic field generating assembly operable in a first mode to generate a first magnetic field in a working volume located outside the assembly, the first magnetic field being suitable for use in a catheter steering procedure, and in a second mode to generate a second, static magnetic field in the working volume suitable for conducting a magnetic resonance imaging process (MRI), the second magnetic field being more uniform in the working volume than the first magnetic field; and a catheter having a magnetic seed attached whose orientation, and hence the steering direction of the catheter, is determined by interaction with the first magnetic field,

as recited in independent claim 1. In other words, the invention of claim 1 provides that the working volume is located outside of the assembly. The Examiner's attention is drawn to Fig. 2 of the drawings of the present invention, where the working volume 7 is offset from the envelope of the magnetic field generating assembly that is defined by the coils 1-6. In contrast, Arenson et al. discloses a conventional solenoid-based system in which the working volume is located inside the solenoid of the system 174 (Arenson et al., Fig. 5A). The Examiner notes that it is obvious that MRI systems are capable of generating steady, homogeneous magnetic fields and that it would be obvious that an MRI system creates a magnetic field external to the system because shield rooms and areas are warranted during operation of an MRI assembly. It respectfully submitted that this is incorrect. While it may be agreed upon that MRI systems can generate steady, homogeneous magnetic fields, it is submitted that in conventional MRI systems, such as that disclosed in Arenson et al., generate such fields only internally.

This is contrasted with claim 1, which provides an external working volume. Furthermore, while it may be agreed that conventional MRI magnets generate external fields, it is submitted that these fields are fringe fields that are uncontrollable and highly inhomogeneous. As such, it would not be possible to locate a working volume, suitable for NMR and MRI, within such a fringe field. Therefore, Arenson et al. does not teach or make obvious the features of claim 1.

Furthermore, the invention of claim 1 provides a catheter having a magnetic seed attached. The magnetic seed can maintain a magnetic field and allows the steering direction of the catheter to be determined by interaction with the first magnetic field. Since the magnetization direction can be maintained by the seed, electrical current can be turned off, thus reducing power consumption and reducing unnecessary interaction between the leads carrying the electrical current and the surrounding magnetic field. In contrast, the catheter of Arenson et al. has a simple coil arrangement that is either on or off depending on whether or not electric current is applied. As such, Arenson et al. does not provide for maintaining a magnetic field and allowing a steering direction of the catheter to be determined by interaction with a magnetic field. It is respectfully requested that the Examiner address this argument and indicate the portion of Arenson et al. that discloses a catheter having a magnetic seed attached.

Since Arenson et al. does not discuss, suggest, or make obvious all of the features of the invention of claim 1, claim 1 patentably distinguishes over Arenson et al. Accordingly, withdrawal of this § 103(a) rejection is respectfully requested.

Claims 2-4 and 7-8 depend either directly or indirectly from claim 1, and include all the features of claim 1, plus additional features that are not discussed or suggested by the reference relied upon. Therefore, claims 2-4 and 7-8 patentably distinguish over the reference relied upon for at least the reasons noted above. Accordingly, withdrawal of these § 102(e) rejections is respectfully requested.

Arenson et al. does not discuss or suggest:

providing an imaging and catheter steering assembly comprising a magnetic field generating assembly operable in a first mode to generate a first magnetic field in a working volume located outside the assembly, the first magnetic field being suitable for use in a catheter steering procedure, and in a second mode to generate a second, static magnetic field in the working volume suitable for conducting a magnetic resonance imaging process (MRI), the second magnetic field being more uniform in the working volume than the first magnetic field; and a catheter having a magnetic seed attached whose orientation, and hence the steering direction of the catheter, is determined by interaction with the first magnetic field; inserting the catheter into a body; steering the catheter through the body by selectively operating the assembly in the first mode; and obtaining an image of part of the body by operating the assembly in the second, imaging mode,

as recited in independent claim 9, so that claim 9 patentably distinguishes over Arenson et al. Accordingly, withdrawal of this § 103(a) rejection is respectfully requested. For example, claim 9 provides that the working volume is located outside of the assembly and that the catheter has a magnetic seed that can maintain a magnetic field and can allow the steering direction of the catheter to be determined by interaction with the first magnetic field.

In the Office Action, at pages 5-6, dependent claims 5-6 were rejected under 35 USC § 103(a) as being unpatentable over Arenson et al. in view of Breneman et al. (U.S. Patent No. 5,412,363) and McDougall et al. (U.S. Patent No. 5,680,044), respectively.

As discussed above, Arenson et al. does not discuss, suggest, or make obvious all of the features of the invention of claim 1. Neither Breneman et al. nor McDougall et al. make up for the deficiencies in Arenson et al. Therefore claim 1 patentably distinguishes over Arenson et al., Breneman et al., and McDougall et al., and any combination thereof.

Claims 5-6 depend either directly or indirectly from claim 1, and include all the features of claim 1, plus additional features that are not discussed or suggested by the references relied upon. Therefore, claims 5-6 patentably distinguish over the references relied upon for at least the reasons noted above. Accordingly, withdrawal of these § 103(a) rejections is respectfully requested.

CONCLUSION

Claims 1-9 are pending and under consideration.

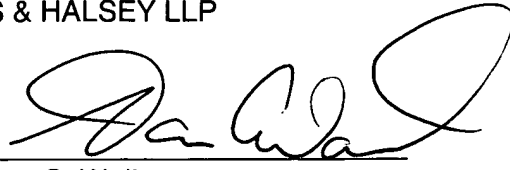
There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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